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Parsons Behle & Latimer  
Suite 1800  
201 South Main Street  
Salt Lake City, UT 84111

EXAMINER
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CAO, PHUONG THAO

ART UNIT	PAPER NUMBER
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2164

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/23/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/729,878	<b>Applicant(s)</b> WAKEFIELD ET AL.	
	<b>Examiner</b> Phuong-Thao Cao	<b>Art Unit</b> 2164	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. This action is in response to Amendment filed on 12/12/2006.
2. Claims 1 and 6 have been amended. Currently, claims 1-32 are pending.
3. The filed Terminal Disclaimer and amendment of claims are effective to overcome the Double Patenting rejection.

### ***Response to Arguments***

4. Applicant's arguments with respect to amended claim 1 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Objections***

5. Claim 10 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.
6. Claim 2-17 and 19-32 are objected to as being of improper dependent form: The "A" at the beginning of the claims must be deleted and replaced by "The".

*Claim Rejections - 35 USC § 112*

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 16, 17, 31 and 32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 16 recites the limitation "the identified attributes" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 17 recites the limitation "identified relational facts" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 31 recites the limitation "the identified attributes" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 32 recites the limitation "identified relation types" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Appropriate corrections are required.

*Claim Rejections - 35 USC § 101*

9. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

10. Claims 1-5, 9-21 and 25-32 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Regarding claims 1 and 18, these claims recite the process of producing structured data from unstructured free text, but fail to recite a tangible result.

For a result to be tangible, it must be more than just a thought or a computation; it must have real-world value rather than an abstract result. What has been generated, determined, calculated, selected or decided, etc. without using what has been generated, determined, calculated, selected, decided, etc. in a disclosed practical application or at least making what has been generated, determined, calculated, selected, decided, etc. available for use through some form of conveyance (for example, display, print, sound, transmission, etc.) or at least temporary storage somewhere is not considered a tangible result. For instance, note that the limitations of claims 6-8 and 22-24 are not rejected, since they recite the function of storing the data resulting from the production step in a database or a file, whereas (for instance), claim 1 merely cites 'producing a structured data element' as the result.

Claims 2-5, 9-17, 19-21 and 25-32 are rejected as incorporating the deficiencies of claims 1 and 18 upon which they depend respectively.

***Claim Rejections - 35 USC § 102***

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 18-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Gaizauskas et al. (“Information Extraction: Beyond Document Retrieval”, Computational Linguistics Society of R.O.C., August 1998).

As to claim 18, Gaizauskas et al. teach:

“A method for producing structured data from unstructured free text” (see Abstract and [page 17, paragraph 2]), comprising the steps of:

“accessing a source of unstructured data, the unstructured data including free text” (see [page 17, paragraph 2] and [page 24, paragraph 2]);

“identifying text records within the free text” (see [page 17, paragraph 2] and [page 44, paragraphs 3 and 4] where the disclosure of applying domain-specific lexically-triggered patterns to identify information for extracting implies identifying corresponding patterns such as phrase

or sentence within the text which is equivalent to Applicant's "text records"; also see [page 34, paragraphs 3-6]);

"parsing the identified text records" (see [page 19, paragraph 1] and [page 44, paragraph 4] wherein a sentence or phrase from the text is equivalent to Applicant's "text records"; also see [page 38, paragraph 2-3]);

"identifying roles with the parsed text records, said identifying producing attribute extractions, each of said attribute extractions containing role information of the derived source text" (see [page 21, paragraph 2] and [page 22, paragraphs 2-3]);

"applying caseframes to the attribute extractions, said applying caseframes producing a filtered set of attribute extractions" (see [page 22, paragraph 3], [page 23, first paragraph] and [page 44, last paragraph] ); and

"producing a structured data elements containing the filtered set of extractions" (see Abstract and [page 21, paragraph 1] wherein structured record is equivalent to Applicant's "structured data element").

As to claim 19, this claim is rejected based on arguments given above for rejected claim 18 and is similarly rejected including the following:

Gaizauskas et al. teach:

"identifying domains of filtered set of attribute extractions" (see [page 21, paragraph 2] and [page 22, paragraph 1] wherein the disclosure of using sketchy scripts for sixty situations to extract information from news stories in domains ranging from earthquakes to labour strikes

indicates that domains must be identified in order to use specific scripts to extract corresponding information as illustrated in Applicant's claim language; also see [page 24, paragraph 2]).

As to claim 20, this claim is rejected based on arguments given above for rejected claim 19 and is similarly rejected including the following:

Gaizauskas et al. teach:

“assigning domain roles” (see [page 22, paragraphs 2-3] wherein using script-driven predictions to identify actors (such as originating customer, originating bank, receiving bank, etc.) is an example of assigning domain roles; or the disclosure of “what was to be extracted were roles in particular historical events, such as...” is another example of assigning domain roles as illustrated in Applicant's claim language).

As to claim 21, this claim is rejected based on arguments given above for rejected claim 20 and is similarly rejected including the following:

Gaizauskas et al. teach:

“producing relation types” (see Abstract and [page 19, paragraph 1] wherein grammatical variation (active/passive) or lexical variation (‘named to’ vs. ‘took the helm’) are examples of relation types; also see [page 22, paragraph 3] wherein semantic relations is equivalent to Applicant's “relation types”).

As to claim 22, this claim is rejected based on arguments given above for rejected claim 18 and is similarly rejected including the following:



Gaizauskas et al. teach:

“creating a new database containing the structured data element produced in said producing” (see Abstract, [page 17, paragraph 2], [page 33, paragraph 3] and [page 48, paragraph 7]).

As to claim 23, this claim is rejected based on arguments given above for rejected claim 18 and is similarly rejected including the following:

Gaizauskas et al. teach:

“producing a new relational database containing the structured data element produced in said producing a structured data element” (see [page 52, paragraph 3] wherein conventional databases can be accessed with SQL query processors are relational databases; also see [page 21, paragraph 1]).

As to claim 24, this claim is rejected based on arguments given above for rejected claim 18 and is similarly rejected including the following:

Gaizauskas et al. teach:

“producing a file containing the structured data element produced in said producing a structured data element” (see Abstract and Figure 1 wherein template or structured database is equivalent to Applicant’s “file”).

As to claim 25, this claim is rejected based on arguments given above for rejected claim 24 and is similarly rejected including the following:

Gaizauskas et al. teach:

“a file is produced having a format containing the structured data element selected from the group of XML, character separated values, spreadsheet formats and file-based database structures” (see Abstract, Figure 1d , [page 21, paragraph 1], [page 43, paragraph 2], [page 48, paragraphs 6-7], [page 49, paragraph 1]).

As to claim 26, this claim is rejected based on arguments given above for rejected claim 18 and is similarly rejected including the following:

Gaizauskas et al. teach:

“the performing of said producing includes reference information to the original free text for construed data” (see [page 17, paragraph 2] wherein the disclosure of constructing indices into the source texts implies the inclusion of reference information as illustrated in Applicant’s claim language).

As to claim 27, this claim is rejected based on arguments given above for rejected claim 18 and is similarly rejected including the following:

Gaizauskas et al. teach:

“constructing a library containing extracted attributes” (see [page 39, paragraphs 2-4] and [page 40 paragraphs 1-2] wherein attribute knowledge base is equivalent to Applicant’s “library containing extracted attributes”).

As to claim 28, this claim is rejected based on arguments given above for rejected claim 18 and is similarly rejected including the following:

Gaizauskas et al. teach:

“constructing a library containing extracted relational facts” (see [page 22, paragraph 2] wherein a template of ‘fact extraction’ system containing extracted information about company earnings and dividends is equivalent to Applicant’s “a library containing extracted relational facts”).

As to claim 29, this claim is rejected based on arguments given above for rejected claim 18 and is similarly rejected including the following:

Gaizauskas et al. teach:

“combining like relation types” (see [page 42, paragraph 3] for the disclosure of merging the logical object of the naming event with the logical subject of the naming event).

As to claim 30, this claim is rejected based on arguments given above for rejected claim 18 and is similarly rejected including the following:

Gaizauskas et al. teach:

“combining like attributes” (see [page 18, paragraph 3-7] and [page 19, paragraph 1] wherein to extract a fact such as disclosed from each of alternative formulations, it must include the combination of like attributes which play different roles in different sentences (1), (2) and (3)).

As to claim 31, this claim is rejected based on arguments given above for rejected claim 18 and is similarly rejected including the following:

Gaizauskas et al. teach:

“coalescing the identified attributes” (see [page 22, paragraph 2] wherein identified actors as disclosed are equivalent to Applicant’s “identified attributes”, and filling in a template with identified actors is equivalent to Applicant’s claim language; also see [page 50, paragraph 1]).

As to claim 32, this claim is rejected based on arguments given above for rejected claim 18 and is similarly rejected including the following:

Gaizauskas et al. teach:

“coalescing identified relation types” (see [page 22, paragraph 3] wherein semantic relations is equivalent to Applicant’s “relation types” and the disclosure of capturing certain semantic relations is equivalent to Applicant’s claim language; also see [page 33, paragraph 2] wherein caseframes represent different relation types).

### ***Claim Rejections - 35 USC § 103***

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rao et al. (Publication No US 2003/0120458) in view of Gaizauskas et al. (“Information Extraction: Beyond Document Retrieval”, 1998).

As to claim 1, Rao et al. teaches:

“A computer program product located on one or more storage media devices usable to produce structured data from unstructured free text” (see Abstract), said computer program product comprising instructions executable by a computer to perform the functions of:

“accessing a source of data records that contain structured and unstructured data, the unstructured data including free text, and the unstructured data of a particular record containing information related to the structured data in that record” (see Fig. 2, [0008], [0018], [0033]-[0035] wherein each computerized patent record (CPR) is equivalent to Applicant’s “data record”);

“linguistically parsing the free text” (see [0081]);

“extracting multiple-dimensional relational facts from the parsed free text, the multiple dimensional relational facts relating to the structured data of the data record from which the free text was taken, and the multiple-dimensional relational facts including a plurality of attributes derived from the free text” (see [0035], [0036] and [0039]-[0044] wherein extracted information regarding a patient is equivalent to Applicant’s “multiple-dimensional relational facts”); and

“producing a structured data element containing the filtered set of extractions” (see [0035]-[0037] wherein each patient state is equivalent to Applicant’s “structured data element”; also see [0043] for element with name “Cancer”, value “True” and confidence 0.9).

Rao et al. does not teach:

“said extracting step including identifying roles within the parsed text records, each of said extractions containing role information”; and

“applying caseframes to the extractions, said applying caseframes producing a filtered set of attribute extractions”.

Gaizauskas et al. teaches:

“said extracting step including identifying roles within the parsed text records, each of said extractions containing role information” (see [page 21, paragraph 2] and [page 22, paragraph 2-3] for ); and

“applying caseframes to extractions, said applying caseframes producing a filtered set of attribute extractions” (see [page 22, paragraph 3] and [page 23, first paragraph]).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Rao et al. by the teaching of Gaizauskas et al. to add the features of identifying roles within the parsed text record and applying caseframes to extractions since both Rao et al. and Gaizauskas et al. pursue in the field of generating structured data from text and adding these features provides more effective system because conceptual natural language processing systems usually rely on case frame instantiation to recognize events and role objects in text and the case frames generate more cohesive output and produce fewer false hits than the original extraction patterns.

As to claim 2, this claim is rejected based on arguments given above for rejected claim 1, and is similarly rejected including the following:

Rao et al. as modified teaches:

“identifying domains of the filtered set of attribute extractions” (see [0010] for the use of domain-specific criteria to infer patient states wherein each patient state is equivalent to Applicant’s “filtered set of attribute extractions” and domain must be identified to be able to select the domain-specific criteria as disclosed).

As to claim 3, this claim is rejected based on arguments given above for rejected claim 2, and is similarly rejected including the following:

Rao et al. as modified does not teach:

“assigning domain roles to the extractions”.

Gaizauskas et al. teaches:

“assigning domain roles to the extractions” (see [page 22, last paragraph] for the disclosure of what was to be extracted were roles in particular historical events); and

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Rao et al. by the teaching of Gaizauskas et al. to add the feature of assigning domain roles to the extractions since both Rao et al. and Gaizauskas et al. pursue in the field of generating structured data from text and adding this feature provides the system an effective way to identifying the types of information that need to be recognized.

As to claim 4, this claim is rejected based on arguments given above for rejected claim 3, and is similarly rejected including the following:

Rao et al. as modified teaches:

“producing relation types” (see [0036] wherein each pieces of information or element regarding the patient or each probabilistic assertion is equivalent to Applicant’s “relation type”).

As to claim 5, this claim is rejected based on arguments given above for rejected claim 4, and is similarly rejected including the following:

Rao et al. as modified teaches:

“coalescing the produced relation types” (see [0036] and [0037] for the combination component).

As to claim 6, this claim is rejected based on arguments given above for rejected claim 1, and is similarly rejected including the following:

Rao et al. as modified teaches:

“integrating said relational facts to the structured data of the data record to which they relate” (see [0035]-[0037], [0045], [0046] and [0071] wherein the structured CPR includes both structured data of the patient record and relational facts (patient states)), and

“creating a new database containing the structured data element produced in said producing a structured data element” (see Abstract, [0020] and [0031] wherein data warehouse system that contains structured CPR generated by the mining process is equivalent to Applicant’s “new database”).

As to claim 7, this claim is rejected based on arguments given above for rejected claim 1, and is similarly rejected including the following:



Rao et al. as modified teaches:

“produce a new relational database containing the structured data element produced in said producing a structured data element” (see [0080] for the support of relational database).

As to claim 8, this claim is rejected based on arguments given above for rejected claim 1, and is similarly rejected including the following:

Rao et al. as modified teaches:

“producing a file containing the structured data element produced in said producing a structured data element” (see Abstract, Fig. 3, and [0070]-[0071] wherein the structured CPR is equivalent to Applicant’s “structured data element” and it must be stored in a file).

As to claim 9, this claim is rejected based on arguments given above for rejected claim 5, and is similarly rejected including the following:

Rao et al. as modified teaches:

“produce a file having a format containing the structured data element selected from the group of SML, character separate values, spreadsheet formats and file-based database structures” (see [0032] and [0070]-[0071]).

As to claim 10, this claim is rejected based on arguments given above for rejected claims 1 and 9 respectively, and is similarly rejected including the following:

Rao et al. as modified teaches:

Art Unit: 2164

“a computer system including a computer program product according to claim 1, further comprising: a processing unit coupled to said one or more storage media devices, said processing unit being capable of executing said instructions, and an execution command unit, whereby operation of said instructions and said processing unit may be commanded or controlled” (see [0026]-[0030]).

As to claim 11, this claim is rejected based on arguments given above for rejected claim 1, and is similarly rejected including the following:

Rao et al. as modified teaches:

“wherein the structured data element produced by the performance of said producing including reference information to the original free text for construed data” (see [0070]-[0071] wherein information to identify an individual patient is a reference between the original CPR (which including original free text [0034]) and the structured CPR (structured data element) of that individual patient).

As to claim 12, this claim is rejected based on arguments given above for rejected claim 1, and is similarly rejected including the following:

Rao et al. as modified teaches:

“construct a library containing extracted attributes” (see [0039]-[0043] wherein domain knowledge base is equivalent to Applicant’s “library containing extracted attributes”).

As to claim 13, this claim is rejected based on arguments given above for rejected claim 1, and is similarly rejected including the following:

Rao et al. as modified teaches:

“construct a library containing extracted relational facts” (see [0039]-[0043] wherein disease-specific knowledge base is equivalent to Applicant’s “library containing extracted relational facts”).

As to claim 14, this claim is rejected based on arguments given above for rejected claim 1, and is similarly rejected including the following:

Rao et al. as modified teaches:

“combining like relation types” (see [0036] and [0043] for combining all the elements that refer to the same variable wherein element as disclosed is equivalent to Applicant’s “relation type”).

As to claim 15, this claim is rejected based on arguments given above for rejected claim 1, and is similarly rejected including the following:

Rao et al. as modified teaches:

“combining like attributes” (see [0053]).

As to claim 16, this claim is rejected based on arguments given above for rejected claim 1, and is similarly rejected including the following:

Rao et al. as modified teaches:

Art Unit: 2164

“coalescing the identified attributes” (see [0043] for uniting attributes “name”, “value”, and “confidence”).

As to claim 17, this claim is rejected based on arguments given above for rejected claim 1, and is similarly rejected including the following:

Rao et al. as modified teaches:

“coalescing identified relational facts” (see [0037] for state sequence including a set of patient states at different points in time during the patient’s treatment wherein patient state represents relational facts extracted from patient record).

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuong-Thao Cao whose telephone number is (571) 272-2735. The examiner can normally be reached on 8:30 AM - 5:00 PM (Mon - Fri).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Rones can be reached on (571) 272-4085. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PTC

January 18, 2007

  
**CHARLES RONES**  
**SUPERVISORY PATENT EXAMINER**

*ASW 22 January 2007*